

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 25-31 and 33-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buchholz et al. in view of JP 63-45229, (from here on will be referred as Document '229).

Re: claim 25, Bucholz shows a lightweight two-part backing plate for a drum brake assembly, as in the present invention, the backing plate including: a shield plate 5 for supporting and shielding components of a drum brake assembly, and an abutment plate 4 attached to the shield plate and mounted on an interior portion of the shield plate and being configured to resist braking forces, the abutment plate comprising: an upper portion includes a plurality of mounting features, bolt holes 16, for mounting the abutment plate to an axle housing of a vehicle, a lower portion shaped to generally correspond to an anchor block 8 of the drum brake assembly and configured to engage and resist braking forces from brake shoes, and an intermediate portion located between the upper and lower portion, and the width of the lower portion being less than the width of the upper portion as shown; wherein the combination of the shield plate and abutment plate reduce vibration of the drum brake assembly while providing sufficient

resistant braking forces applied by the brake shoes. Buchholz lacks the shield plate having a thickness of 0.8 mm to 1.8 mm and being formed of a damped steel comprising: a first and second steel layer, the thickness of the first and second steel layer being approximately equal, and an intermediate layer located between the first and second layer, the intermediate layer being formed of viscoelastic polymer; and the abutment plate having a thickness of 3 mm to 6 mm and having a generally square shape and located on an interior portion of the drum brake assembly. Document '229 teaches the concept of using damped steel in the construction of a shielding plate 10 in order to further reduce noise and vibration from braking operations wherein the damped steel comprises a first and second steel layer, the thickness of the first and second steel layer being approximately equal, and an intermediate layer located between the first and second layer, the intermediate layer being formed of viscoelastic polymer in combination with an abutment plate 9 being located on an interior portion of the drum brake assembly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Buchholz's backing plate assembly to comprise the material of damped steel as taught by Document '229, since it is proven that damped steel is excellent in dampen noise and vibration as taught by Document '229. With regards to the shape of the abutment plate and the dimensions of the abutment plate and the shield plate, these claimed features are considered to be engineering design choices wherein these choices can be selected to achieve a desired level of dampening. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified Buchholz's brake assembly to

comprise the abutment plate and shielding plate with certain thicknesses and shape in order to satisfy different requirements of each application to dampen the required vibration and noise.

Re: claims 26, 27, 29, 30 and 31, the thicknesses of the steel and the damped steel, and the shape of the abutment plate are considered to be engineering design choices and would depend on the requirements of each application to dampen the required vibration and noise as mentioned above.

Re: claim 28, Buchholz shows the abutment plate includes one or more anchors 8 for resisting movement of brake shoes of the drum brake assembly.

Re: claims 33 and 34, Buchholz shows the shield plate 5 and the abutment plate 4 are formed separately, wherein the shield plate 5 is configured to support a hydraulic cylinder 9 of the drum brake assembly.

Re: claim 35, the discussion of the rejection of claim 25 meets the claim limitations of claim 35 except Buchholz's shield plate shows the circumferential lip to be extending in the opposite direction of the claimed circumferential lip in claim 35. Document '229 further teaches the shield plate 10 to comprise the circumferential lip extending in the direction as claimed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified Buchholz's shield plate to comprise the lip extending in the direction as taught by Document '229 so that the shield plate would protect the drum's exterior and further dissipate vibration as taught by Document '229.

Re: claims 36 and 37, Buchholz shows in figures 3 and 5, the shield plate 5 and the abutment plate 4 comprising a plurality of surfaces as claimed.

Re: claims 38, 40 and 41, Buchholz shows the relationship of the shield plate and the abutment plate as claimed in figures 3 and 5.

Re: claim 39, figure 3 of Buchholz shows the upper portion and the lower portion of the abutment plate to be located on different planes.

Re: claim 42, the discussion of the rejection of claims 35-41 meets all the claimed limitations of claim 42.

3. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Buchholz et al. in view of JP 63-45229, (from here on will be referred as Document '229) and further in view of Ludke et al. (USP 5,896,958).

Buchholz's backing plate, as modified and as rejected in claim 25, lacks a mounting hole defines by the abutment plate for receiving an antilock braking sensor. Ludke teaches in figure 2 a two part backing plate comprising a shield plate 22 and an abutment plate 10 to resist the braking force wherein the abutment plate 10 defines a mounting hole for mounting an antilock braking sensor 46. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified Buchholz's backing plate to comprise a hole for mounting an ABS sensor as taught by Ludke in order to provide a reliable location for an ABS sensor.

Response to Arguments

4. Applicant's arguments filed 11/13/07 have been fully considered but found to be non persuasive. The Examiner maintains that the rejections and the previous responses to Applicant's arguments are still proper; hence the rejections are repeated above.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Nguyen whose telephone number is (571) 272-7121. The examiner can normally be reached on Monday through Friday, 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Xuan Lan Nguyen/ 1-16-08
Primary Examiner
Art Unit 3683